

Serial No. 10/806,320

Docket No.: 1293.1278C3

IN THE CLAIMS:

Please CANCEL claims 13, and 25-29 without prejudice or disclaimer in accordance with the following:

1. (PREVIOUSLY PRESENTED) An apparatus for forming a first state and a second state alternatively and sequentially on an optical recording medium in response to input data having a first level and a second level less than the first level, respectively, in an optical recording apparatus, the apparatus comprising:

 a recording waveform generating unit generating a recording waveform which includes:

 a first multi-pulse corresponding to the first level of the input data and alternating between a low first multi-pulse level and a high first multi-pulse level,

 a second multi-pulse preceding the first multi-pulse and corresponding to the second level of the input data, the second multi-pulse alternating between a low second multi-pulse level and a high second multi-pulse level,

 a leading one of the pulses of the second multi-pulse set to the low second multi-pulse level,

 a power level between an end of the second multi-pulse and a first one of the pulses of the first multi-pulse set to the high second multi-pulse level, and

 the high second multi-pulse level set between the low and high first multi-pulse levels.

2. (ORIGINAL) The apparatus of claim 1, further comprising:

 a pickup unit generating light to form the first state and the second state on the optical recording medium in accordance with the first multi-pulse and the second multi-pulse of the recording waveform generated from the recording waveform generating unit.

3. (PREVIOUSLY PRESENTED) The apparatus of claim 2, wherein the pickup unit comprises:

 a laser device generating the light varying in accordance with the first multi-pulse and the second multi-pulse to form the first state and the second state on the optical recording medium.

4. (PREVIOUSLY PRESENTED) The apparatus of claim 3, wherein the laser device has a voltage to generate the light, and the voltage varies according to the first multi-pulse during forming the first state and in accordance with the second multi-pulse during forming the second state.

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5. (ORIGINAL) The apparatus of claim 3, wherein the voltage is not a DC voltage.

6. (ORIGINAL) The apparatus of claim 1, wherein the input data comprises NRZI data having a high potential and a low potential each representing one of the first level and the second level.

7. (ORIGINAL) The apparatus of claim 1, wherein the first state is a mark, and the second state is a space.

8. (ORIGINAL) The apparatus of claim 1, wherein the first multi-pulse is a recording pattern to form a mark, and the second multi-pulse is an erase pattern to form a space.

9. (PREVIOUSLY PRESENTED) The apparatus of claim 1, wherein the recording waveform generating unit generates a cooling pulse connecting another first multi-pulse preceding the second multi-pulse and which extends from a trailing one of the pulses of the another first multi-pulse to the leading one of the pulses of the second multi-pulse.

10. (ORIGINAL) The apparatus of claim 9, wherein the cooling pulse forms a portion of the first pulses and a portion of the second pulses.

11. (PREVIOUSLY PRESENTED) The apparatus of claim 10, wherein the cooling pulse has a level less than the low first and second multi-pulse levels.

12. (PREVIOUSLY PRESENTED) The apparatus of claim 1, wherein the high second multi-pulse level is less than the high first multi-pulse level.

13. (CANCELLED)

14. (ORIGINAL) The apparatus of claim 11, wherein the first pulses have a first duty cycle, and the second pulses a second duty cycle.

15. (ORIGINAL) The apparatus of claim 14, wherein each second pulse comprises a high level and a low level, and the second duty cycle comprises:

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a ratio of a duration time of the high level and another duration time of the low level in a range between $0.25T$ and $0.75T$, where T is a cycle of a reference clock.

16. (ORIGINAL) The apparatus of claim 1, further comprising:
a servo unit rotating the optical recording medium according to one of the first multi-pulse and the second multi-pulse during forming the first state and the second state.

17. (ORIGINAL) The apparatus of claim 16, wherein the second multi-pulse comprises a starting pulse and an ending pulse, and the servo unit controls a rotation speed of the optical recording medium in accordance with one of a starting pulse and an ending pulse of the second multi-pulse.

18. (PREVIOUSLY PRESENTED) The apparatus of claim 1, wherein the recording waveform generating unit detects information data representing a characteristic of the second multi-pulse.

19. (PREVIOUSLY PRESENTED) The apparatus of claim 18, wherein the optical recording medium includes a wobble signal, and the recording waveform generating unit detects the information data from the wobble signal.

20. (ORIGINAL) The apparatus of claim 18, further comprising:
a servo unit rotating the optical recording medium in accordance with the information data.

21. (ORIGINAL) The apparatus of claim 18, further comprising:
a laser device recording the information data on the optical recording medium.

22. (ORIGINAL) The apparatus of claim 21, wherein the optical recording medium comprises a lead-in-area, and the information data is recorded in the lead-in-area of the optical recording medium.

23. (PREVIOUSLY PRESENTED) The apparatus of claim 21, further comprising:
a servo unit receiving the information data read from the optical recording medium and rotating the optical recording medium at a speed corresponding to the received information data.

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24. (PREVIOUSLY PRESENTED) The apparatus of claim 21, further comprising:
a servo unit rotating the optical recording medium in a first speed, receiving the
information data from the optical recording medium, and rotating the optical recording medium at
a second speed according to the received information data.

25-29. (CANCELLED)